Claims

1. A two-cylinder slurry pump for the continuous feeding of, in particular, concrete, in which two feed cylinders remove high-viscosity material from a pre-charging tank and deliver it to a feed line and a changeover valve having a pivotable diverter valve is provided for switching between the first feed cylinder and the second feed cylinder, said diverter valve
   - having a cross-section that narrows from an inlet opening assigned to said cylinders to a discharge opening assigned to said feed line,
   - being pivotably supported in the region of said discharge opening and
   - connecting at least one feed cylinder, over its entire cross-section, to said feed line in any position of said changeover valve, **characterised in that** a support arrangement (20) and a plate cam (15) securely connected thereto are assigned to said diverter valve (11) on its side facing towards said cylinders (3, 5), said plate cam (15) comprising not only said inlet opening (21) of said diverter valve (11) but also an intake opening (23), which is arranged at sufficient distance from said inlet opening (21) to cover an opening of one of said feed cylinders (3, 5) completely.

2. A slurry pump in accordance with claim 1, **characterised in that** said diverter valve (11) is securely connected to a drive shaft (19) supported within said housing (7) of said changeover valve (9) and that the support for said drive shaft (19) also serves as cylinder-side support for said diverter valve (11).

3. A slurry pump in accordance with claim 1 or 2, **characterised in that** said diverter valve (11) and said plate cam (15), starting out from a central position in which both cylinders (3, 5) are connected to said feed line (13) at the same time, can be pivoted into opposite directions through 120° in each case so as to position said intake opening (23) in front of one feed cylinder (3, 5) at a time.

4. A slurry pump in accordance with any one of the preceding claims, **characterised in that** said plate cam (15) and said diverter valve (11) have a kidney-shaped inlet opening (21) at the cylinder side, said opening extending across 120° along a circular angle and rounded off at both its ends, and that said intake opening (23), on the same circumference, is offset sym-

metrically through 120° with respect to both ends of said inlet opening (21).

5. A slurry pump in accordance with any one of the preceding claims, **characterised in that** said intake opening (23) is designed as a bore within said plate cam (15) having a diameter that corresponds at least to the diameter of said feed cylinders (3, 5).

6. A slurry pump in accordance with any one of the preceding claims 1 to 4, **characterised in that** said intake opening is designed as a marginal recess within said plate cam, the opening of which corresponds at least to the diameter of a feed cylinder.

7. A slurry pump in accordance with any one of the preceding claims, **characterised in that** said kidney-shaped inlet opening (21) is enclosed by a cutting ring.

8. A slurry pump in accordance with any one of the preceding claims, **characterised in that** at least one wear plate is arranged on a lateral surface of said housing (7), said surface pointing towards said diverter valve (11).

9. A slurry pump in accordance with any one of the preceding claims, **characterised in that** said plate cam (15) is slidably supported, at its circumferential edge, on a wall of said housing (7) of said changeover valve (9).

10. A slurry pump in accordance with claim 9, **characterised in that** the circumferential support surface of said plate cam (15) is designed as a wrap-around sliding seal.

11. A slurry pump in accordance with claim 8 and claim 9 or 10, **characterised in that** said plate cam (15) is slidably supported on said wear plate.

12. A slurry pump in accordance with claim 9 or 10, **characterised in that** said plate cam (15) is slidably supported, at its circumference, on a separate wear ring.

13. A slurry pump in accordance with any one of the preceding claims, **characterised in that** said diverter valve (11) can be driven via a drive shaft (19) by means of drive cylinders (25) via a lever (17) or by means of a rotary drive directly for the purpose of pivoting movements.

14. A slurry pump in accordance with claim 13, **characterised in that** at least said drive shaft

(19), in front elevation, is arranged between said feed cylinders (3, 5).

15. A slurry pump in accordance with any one of the preceding claims, **characterised in that** said plate cam (15) is connected to said diverter valve (11) in a detachable manner by means of screws or in a secure manner by welding.

16. A slurry pump in accordance with any one of the preceding claims, **characterised in that** the openings of said feed cylinders (3, 5) open out near to the lower base of said pre-charging tank (8) beneath the pivoting axis of said diverter valve (11).

17. A process for controlling a slurry pump, in particular a slurry pump (1) in accordance with the preceding claims, said pump having two feed cylinders (3, 5) open on one side, having rams and a changeover valve (9) having a movable diverter valve (11) that can be controlled in a manner adapted to the movement of the rams, the inlet opening (10, 21) of said diverter valve being designed for simultaneously covering both feed cylinders (3, 5) in at least one position of said diverter valve (11), and the discharge opening (12) of said diverter valve communicating with a feed line (13), said diverter valve (11) being provided with sealing faces that close the opening of at least one feed cylinder in predetermined positions of said diverter valve, **characterised in that** at the start of the pump lift of the ram (K3, K5) of each feed cylinder (3, 5), its opening is closed by means of a plate-cam (15) sealing face that runs ahead of the inlet opening of said diverter valve, the ram of this feed cylinder performing a precompression stroke, while the ram of the other feed cylinder is in pump-lift mode, and that while both cylinder openings are covered temporarily at the same time by said inlet opening (21), both rams are controlled in a synchronous phase so as to match one another such that the amount of high-viscosity material simultaneously pumped by both rams (K3, K5) is at least roughly the same as if it were being fed by just one ram (K3 or K5) during the intake stroke of the other ram (K3 or K5 respectively).

18. A process in accordance with claim 17, **characterised in that** each pump lift of a ram comprises at least one precompression phase (phases 4/8), a first synchronous phase (phases 1/5), a pump phase (phases 2 to 4/6 to 8) and a second synchronous phase (phases 5/1).

19. A process in accordance with claim 17 or 18, **characterised in that** during the synchronous phases, both rams (K3, K5) are driven at reduced speed and pump capacity.

20. A process in accordance with claim 19, **characterised in that** during the synchronous phases, both rams (K3, K5) are driven at the same speed, in particular at half the normal speed of its further pump lift.

21. A process in accordance with any one of the preceding process claims, **characterised in that** each intake stroke of a ram comprises a start-up ramp and a rundown ramp at a lower speed.

22. A process in accordance with any one of the preceding process claims, **characterised in that** the intake stroke of each ram (phases 3/7) is executed faster than its pump lift, in particular it is enclosed between a relaxation phase (phases 2/6) and a precompression phase (phases 4/8).

23. A process in accordance with any one of the preceding process claims, **characterised in that** said diverter valve (11) is delayed or temporarily stopped during the precompression phase.

24. A process in accordance with any one of the preceding process claims, **characterised in that** said diverter valve (11) is delayed or temporarily stopped during the synchronous phase.

25. A process in accordance with any one of the preceding process claims, **characterised in that** said diverter valve (11) is delayed or temporarily stopped during the relaxation phase.